OM-252 052B 2011–04

Classic Series Welding Helmets

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SECTION 1 – WELDING HELMET SAFETY PRECAUTIONS – READ BEFORE USING

Protect yourself and others from injury — read and follow these precautions.

1-1. Symbol Usage

DANGER! – Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

Indicates a hazardous situation which, if not avoided, could result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

NOTICE *– Indicates statements not related to personal injury.*

☞ *Indicates special instructions.*

This group of symbols means Warning! Watch Out! ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

1-2. Arc Welding Hazards

Only qualified persons should install, operate, maintain, and repair this unit.

ARC RAYS can burn eyes and skin.

Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards). Refer to Shade and Sensitivity charts.
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash, glare, and sparks; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather, heavy cotton, and wool) and foot protection.
- Before welding, adjust the auto-darkening lens sensitivity setting to meet the application.
- Stop welding immediately if the auto-darkening lens does not darken when the arc is struck. See the Owner's Manual for more information.

WELDING HELMETS do not provide unlimited eye, ear and face protection.

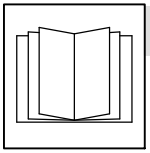
Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Use impact resistant safety spectacles or goggles and ear protection at all times when using this welding helmet.
- Do not use this helmet while working with or around explosives or corrosive liquids.
- Do not weld in the overhead position while using this helmet.
- Inspect the auto-lens frequently. Immediately replace any scratched, cracked, or pitted cover lenses or auto-lenses.

NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.



READ INSTRUCTIONS.

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.
- Use only genuine replacement parts from the manufacturer.
- Perform maintenance and service according to the Owner's Manuals, industry standards, and national, state, and local codes.

FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use local forced ventilation at the arc to remove welding fumes and gases.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watchperson nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

1-3. Proposition 65 Warnings

Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

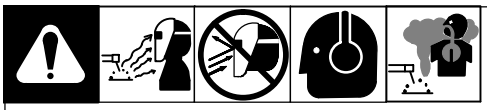
This product contains chemicals, including lead, known to the state of California to cause cancer, birth defects, or other reproductive harm. *Wash hands after use.*

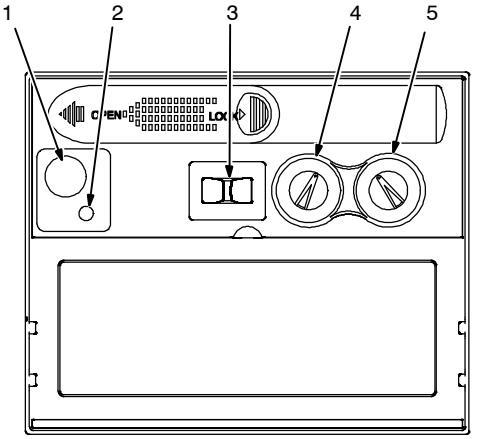
SECTION 2 – SPECIFICATIONS

Specification	Variable Shade Helmet	Fixed Shade No. 10 Helmet
Viewing Field	95 x 34 mm (3.75 x 1.375 in.)	95 x 35 mm (3.75 x 1.375 in.)
Reaction Time	0.0001 sec (1/10,000)	0.000277 sec (1/3,600)
Available Shades	Darkened State: No. 8 – No. 12 Light State: No. 3 Provides continuous UV and IR protection	Darkened State: No. 10 Light State: No. 3 Provides continuous UV and IR protection
Sensitivity Control	Adjusts for varying ambient light and welding arc	Not Applicable
Delay Control	Slows lens dark-to-light state (slow – fast)	Not Applicable
Automatic Power Off	Shuts lens Off 15–20 minutes after last arc is struck	
Low Battery Indicator	Red LED light illuminates to indicate 2–3 days remaining battery life	Not Applicable
Power Supply	AAA alkaline batteries only (Two)	Rechargeable, non-replaceable solar cell
Sensors	Independent/Redundant (Two)	
Operating Temperature	14°F to 131°F / –10°C to +55°C ☞ *When stored in extremely cold temperatures, warm helmet to ambient temperature before welding.*	
Storage Temperature	–4°F to 158°F / –20°C to +70°C ☞ *When stored in extremely cold temperatures, warm helmet to ambient temperature before welding.*	
Total Weight	453.6g (16oz.)	
Standards	ANSI Z87.1+(2003) and CSA	
Warranty	2 years from date of purchase (see Section 11)	

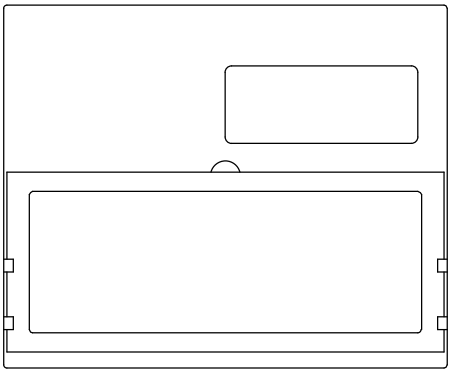
SECTION 3 – OPERATING INSTRUCTIONS

3-1. Helmet Controls





Variable Shade Lens Assembly



Fixed Shade No. 10 Lens Assembly

☞ *Two different lens assemblies are shown. Refer to the illustration that matches the lens on your helmet.*

Variable Shade Model

1 Reset Button (See Section 3-2)

2 Low Battery Indicator (See Section 3-2)

3 Lens Delay Control (See Section 3-3)

4 Variable Shade Control (No. 8 – 12) (See Section 3-4)

5 Sensitivity Control (See Section 3-5)

Fixed Shade No. 10 Model

The fixed shade model has no buttons or controls. The lens turns on (darkens) automatically when welding begins and turns off when welding stops.

☞ *Always make sure the lens is fully charged before welding. Place helmet in direct sunlight for 20 minutes to charge the lens assembly solar cell.*

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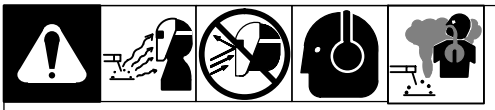
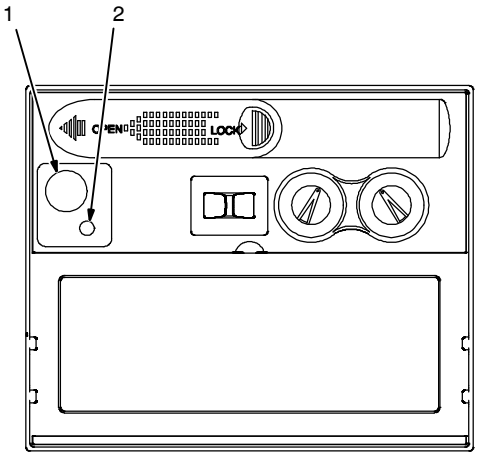
3-2. On Button And Low Battery Indicator





☞ *The auto-darkening lens turns on (darkens) automatically when welding begins and turns off when welding stops.*

1 Reset Button

Press Reset button to check if the lens is working properly.

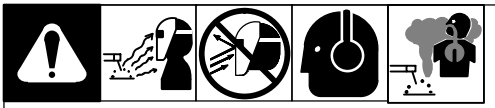
When the Reset button is pressed, the lens should darken twice and return to the clear state. Do not use the helmet if the lens does not function as described. (See Section 9, Troubleshooting.)

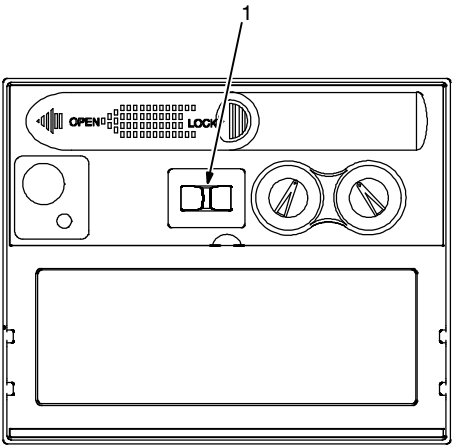
2 Low Battery Indicator

The low battery indicator lights when 2–3 days of battery life remain.

If battery power is low, replace with AAA Alkaline Batteries only (see Section 6).

3-3. Lens Delay Control



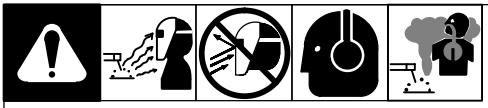


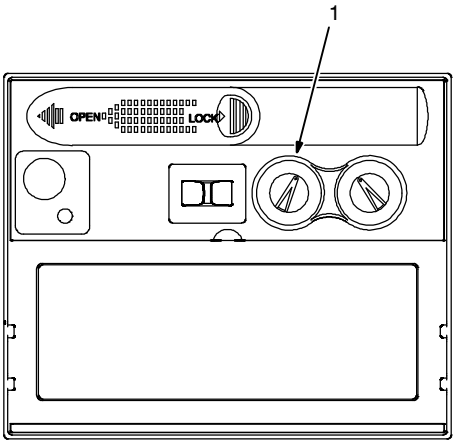
1 Lens Delay Control

The lens delay control is used to adjust the time for the lens to switch to the clear state after welding.

The delay is particularly useful in eliminating bright after-rays present in higher amperage applications where the molten puddle remains bright momentarily after welding. Adjusts from slow to fast.

3-4. Variable Shade Control (No. 8 – 12)





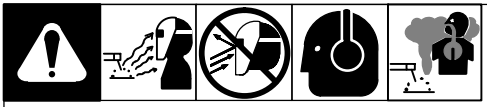
1 Variable Shade Control (No. 8 – 12)

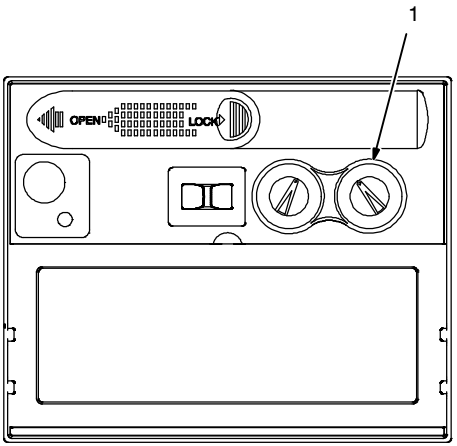
Use the control to adjust the lens shade in the darkened state. Use the table below to select proper shade control setting based on your welding process.

Start at shade 12 and adjust lighter to suit the welding application and your personal preference.

Application Welding	Arc Current in Amperes	Protective Shade No.
Stick Electrodes	Less than 40 40–80 80–175 175–300 300–500	9 10 11 12 13
MIG	Less than 100 100–175 175–300 300–500	10 11 12 13
Gas Tungsten Arc Welding (TIG)	Less than 50 50–100 100–200 200–400	10 11 12 13
Air Carbon	Less than 500 500–700	12 13
Plasma Arc Cutting	60–150 150–250 250–400	11 12 13
Plasma Arc Welding	Less than 50 50–200 200–400	9 10 12

3-5. Sensitivity Control





1 Sensitivity Control

Use control to make the lens more responsive to different light levels in various welding processes. **Use a Mid-Range or 30–50% sensitivity setting for most applications.**

It may be necessary to adjust helmet sensitivity to accommodate different lighting conditions or if lens is flashing On and Off. Adjust helmet sensitivity as follows:

☞ *Adjust helmet sensitivity in lighting conditions helmet will be used in.*

- Turn sensitivity control to lowest setting.
- Press On button to turn helmet On. Helmet lens will darken twice and then clear.
- Face the helmet in the direction of use, exposing it to the surrounding light conditions.
- Gradually turn sensitivity setting clockwise until the lens darkens, then turn sensitivity control counterclockwise until slightly past setting where lens clears. Helmet is ready for use. Slight readjustment may be necessary for certain applications or if lens is flashing on and off.

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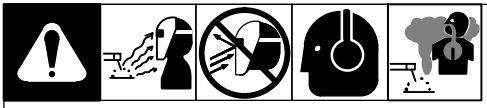
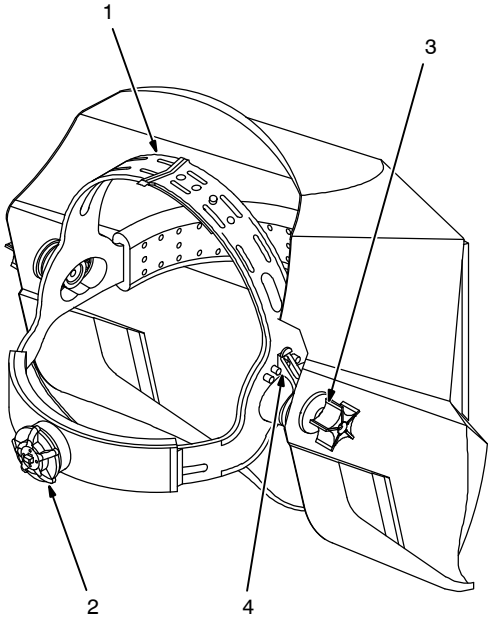
Recommended Sensitivity Settings	
Stick Electrode	Mid-Range
Short Circuiting (MIG)	Low/Mid-Range
Pulsed & Spray (MIG)	Mid-Range
Gas Tungsten Arc (TIG)	Mid/High-Range
Plasma Arc Cutting/Welding	Low/Mid-Range

SECTION 4 – ADJUSTING HEADGEAR





☞ *There are four headgear adjustments: headgear top, tightness, distance adjustment, and angle adjustment.*

1 Headgear Top Adjustment

Adjusts headgear for proper depth on the head to ensure correct balance and stability.

2 Headgear Tightness Adjustment

Adjusts headgear for a secure fit. To adjust, push in the adjusting knob located on the back of the headgear. Turn knob left or right to obtain desired tightness.

☞ *If adjustment is limited, it may be necessary to remove the comfort cushion.*

3 Distance Adjustment

Adjusts the distance between the face and the lens. To adjust, loosen both outside tension knobs and press inward to free from adjustment slots. Move forward or back to desired position and retighten. (Both sides must be equally positioned for proper vision.)

4 Angle Adjustment

Four pins on the right side of the headband top provide adjustment for the forward tilt of the helmet. To adjust, loosen the right outside tension adjustment knob then lift on the control arm tab and move it to the desired position. Retighten tension adjustment knob.

☞ *When using the back distance adjustment position, only the back three angle adjustment pins can be used.*

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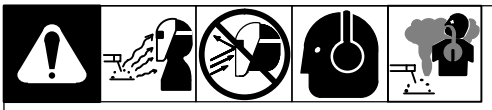
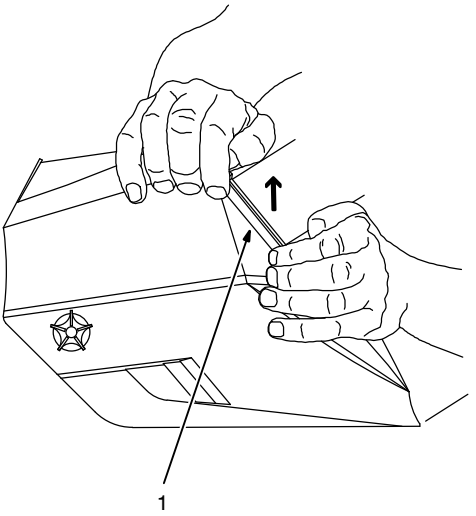
SECTION 5 – REPLACING THE LENS COVERS

5-1. Replacing Outside Lens Cover



Never use the auto-darkening lens without the inside and outside lens covers properly installed. Welding spatter will damage the auto-darkening lens and void the warranty.



1 Outside Lens Cover Frame

2 Lens Cover

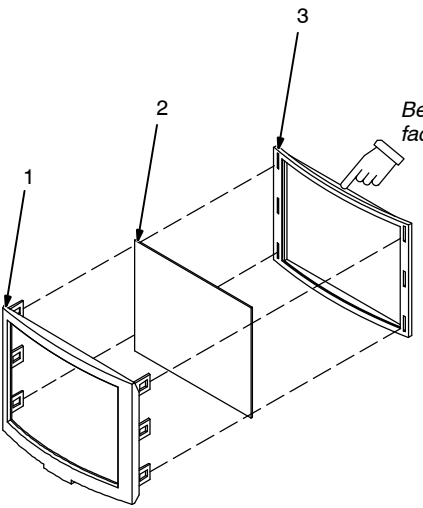
3 Gasket

Remove lens cover frame by grasping the outside corners and pulling the frame away from the helmet.

Remove lens cover and gasket from the six-prong lens frame. Replace lens cover and reinstall gasket and lens in frame. Reinstall frame in helmet.

☞ *Be sure the flat side of lens gasket faces the six-prong lens frame.*

☞ *Be sure all six prongs of lens frame are securely fastened in slots in helmet.*



Be sure flat side of gasket faces lens frame.

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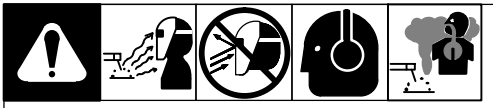
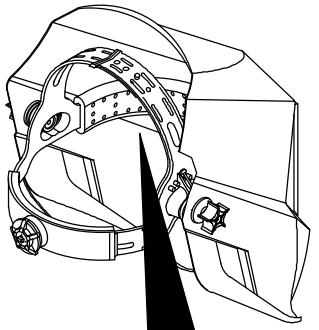
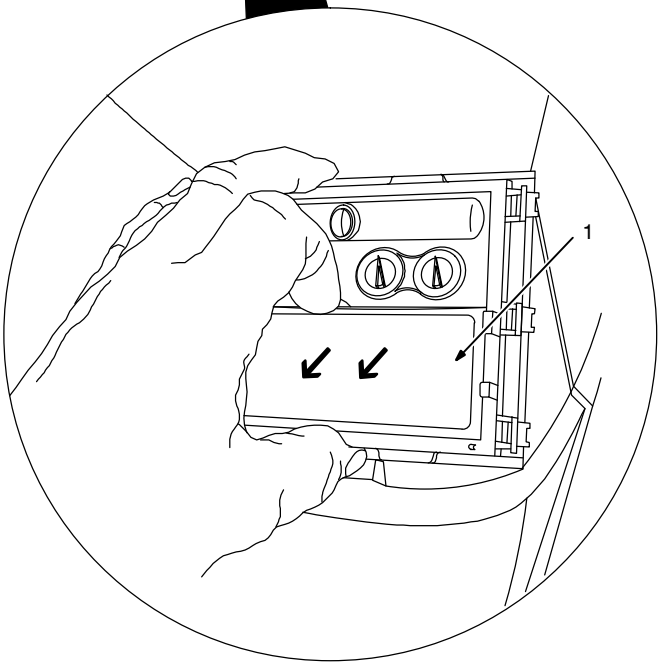
5-2. Replacing Inside Lens Cover







Never use the auto-darkening lens without the inside and outside lens covers properly installed. Welding spatter will damage the auto-darkening lens and void the warranty.

1 inside Lens Cover

Remove the inside lens cover by prying the lens up at the thumbnail opening located at the top center of the lens cover.

Replace the lens cover by gently bowing it in the center and inserting it, one end at a time, into the retaining clips located on the outside of the auto-darkening lens assembly.

☞ *Be sure the cover lens is seated properly (flat) to prevent fogging.*

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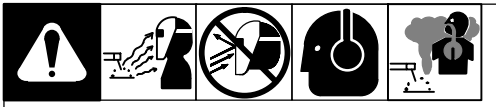
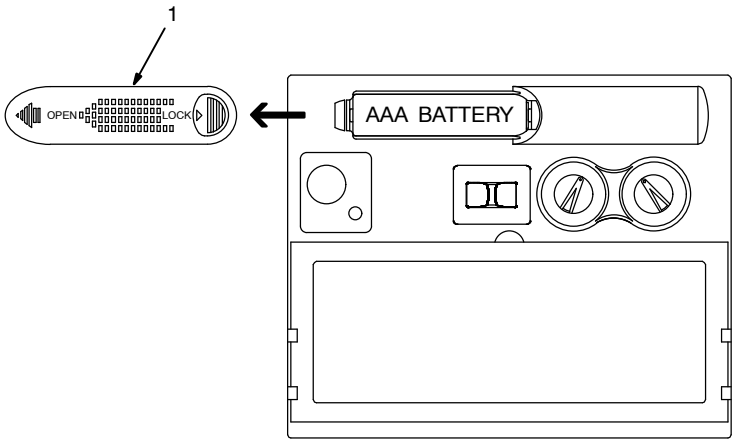
SECTION 6 – REPLACING THE BATTERY

6-1. Variable Shade Helmets

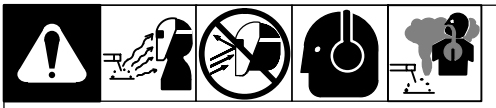


1 Battery Cover

Slide cover to left and remove batteries. Install two AAA alkaline batteries and replace cover.



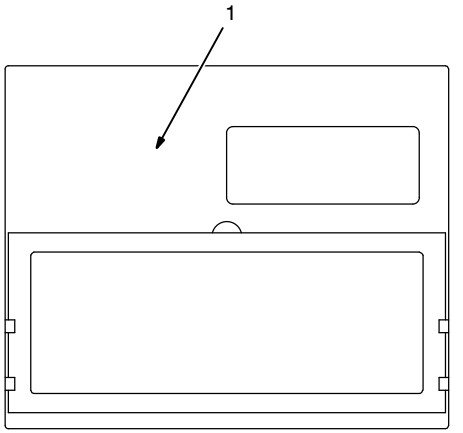
6-2. Fixed Shade No. 10 Helmets



1 Solar Cell (Internal)

Fixed shade models are powered by a rechargeable, non-replaceable solar cell. No service is required.

☞ *Always make sure the lens is fully charged before welding. Place helmet in direct sunlight for 20 minutes to charge lens solar cell.*



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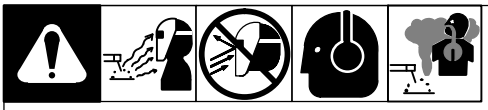
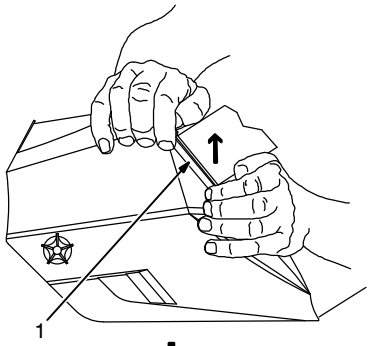
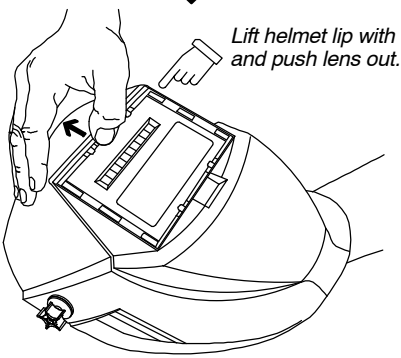
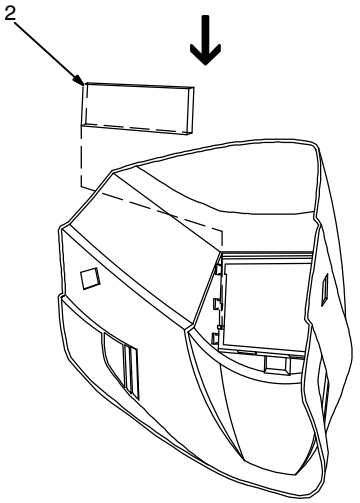
SECTION 7 – INSTALLING OPTIONAL MAGNIFYING LENS









1 Outside Lens Cover Frame

2 Optional Magnifying Lens

Remove lens cover frame by grasping the outside corners and pulling the frame away from the helmet.

Remove the auto-darkening lens assembly by gently lifting the helmet lip above the assembly and pushing assembly free of the retaining brackets.

Starting at the top, slide magnifying lens into the helmet retaining brackets. Position the lens tightly against the bottom holding pins.

Reinstall auto-darkening lens assembly and lens cover frame.

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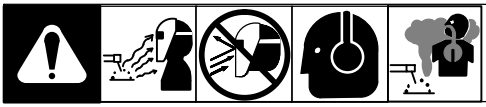
SECTION 8 – MAINTENANCE

☞ *Never use solvents or abrasive cleaning detergents. Do not immerse the lens assembly in water.*

The helmet requires little maintenance. However, for best performance clean after each use. Using a soft cloth dampened with a mild soap and water solution, wipe the cover lenses clean. Allow to air dry. Occasionally, the filter lens and sensors should be cleaned by gently wiping with a soft, dry cloth.

SECTION 9 – TROUBLESHOOTING



Trouble	Remedy
Auto lens not On; lens does not darken momentarily when the Reset button is pressed.	Check batteries and verify they are in good condition and installed properly. Also, check battery surfaces and contacts and clean if necessary.
Auto lens not switching; lens stays light and does not darken when welding.	Stop welding immediately. Press the Reset button on variable shade helmets. On fixed-shade helmets, make sure the lens solar cell is properly charged by placing the helmet in direct sunlight for 20 minutes. If power is on, review the sensitivity recommendations and adjust sensitivity. Clean lens cover and sensors of any obstructions. Make sure the sensors are facing the arc; angles of 45° or more may not allow the arc light to reach the sensors.
Auto lens not Switching; lens stays dark after the weld arc is extinguished, or the lens stays dark when no arc is present.	Fine-tune the sensitivity setting by making small adjustments to the control by turning it toward the “min” setting. In extreme light conditions, it may be necessary to reduce the surrounding light levels.
Sections of the auto-lens are not going dark; distinct lines separate the light and dark areas.	Stop welding immediately. The auto-lens may be cracked which can be caused by the impact of dropping the helmet. Weld spatter on the auto lens may also cause cracking. (The lens may need to be replaced; most cracked lenses are not covered by warranty).
Auto lens switching or Flickering; lens darkens then lightens while the welding arc is present.	Review the sensitivity setting recommendations and increase the sensitivity if possible. Be sure the arc sensors are not being blocked from direct access to the arc light. Check the lens cover for dirt and spatter that may be blocking the arc sensors. Increasing Lens Delay to Fast position may also reduce switching.
Inconsistent or lighter auto-lens shading in the dark-state, noticeable on the outside edges and corners.	Referred to as an angle of view effect, auto-darkening lenses have an optimum viewing angle. The optimum viewing angle is perpendicular or 90° to the surface of the auto-lens. When that angle of view varies in the dark-state, welders may notice slightly lighter areas at the outside edges and the corners of the lens. This is normal and does not represent any health or safety hazard. This effect may also be more noticeable in applications where magnifying lenses are used.

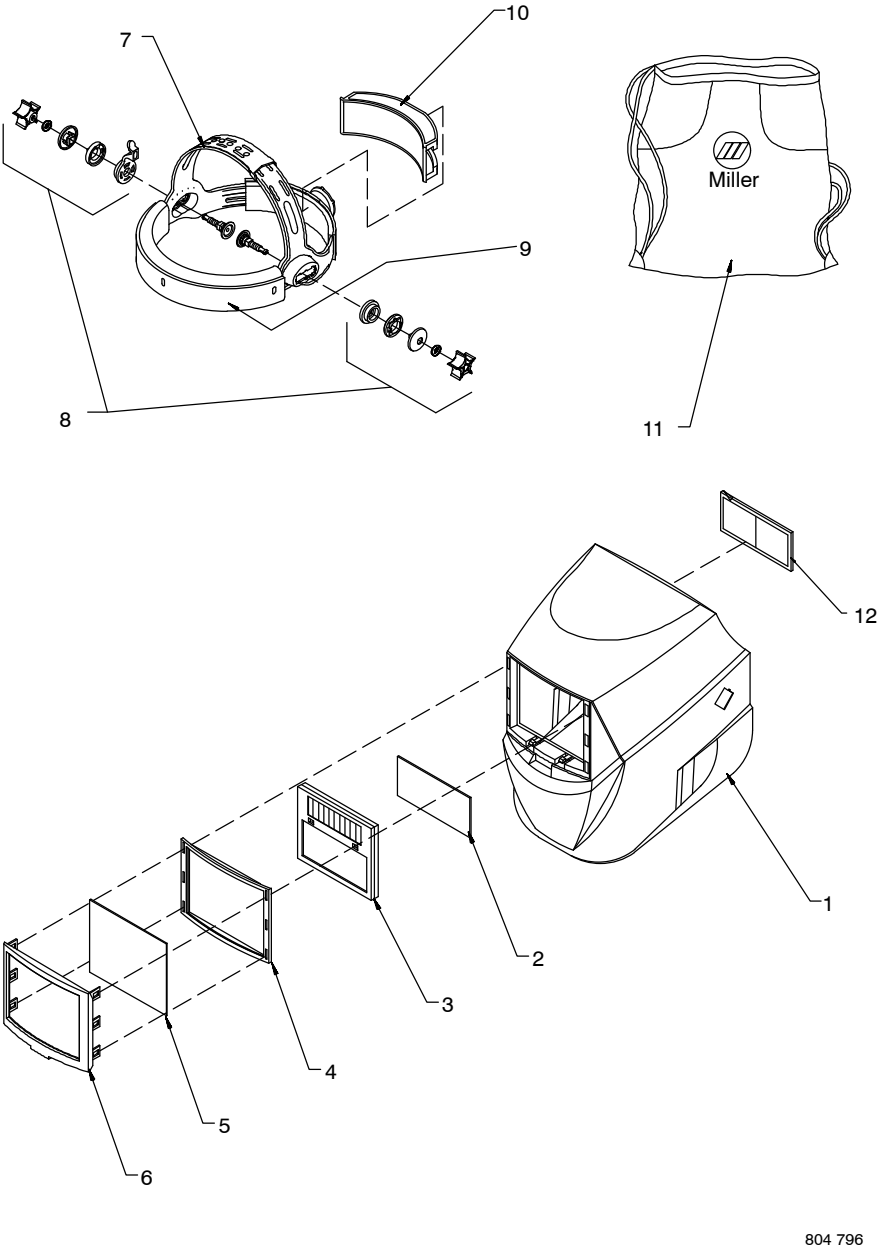


Figure 10-1. Classic Series Auto-Darkening Welding Helmet

Item No.	Part No.	Description	Quantity

Figure 10-1. Classic Series Auto-Darkening Welding Helmet

1	231 415	Helmet Shell, Black	1
2	231 410	Lens Cover, Inside (4.25 – 1.75 in.) (5 Per Pkg.)	1
3	231 571	Auto-Darkening Lens Assy. (Fixed Shade)	1
3	251 293	Auto-Darkening Lens Assy. (Variable Shade)	1
	231 413	Cover, Battery (Variable Shade)	1
4	231 412	Gasket, Front Lens	1
5	231 411	Lens, Front Cover (4.5 x 3.6875 in) (5 Per Pkg.)	1
6	231 572	Holder, Front Lens (Black)	1
7	770 246	Ratchet Headgear Assy.	1
8	770 248	Adjustment Angle/Stop Hardware Kit	1
9	770 249	Headband, Fabric	1
10	216 336♦	Comfort Cushion, Foam Rubber	1
11	770 250♦	Bag Helmet, Miller	1
	079 975♦	O-Rings, Replacement (For Item 8) (5 Per Pkg.)	1
	222 003♦	Adapters, Hard Hat (Not Shown)	1
12	212 235♦	Lens, 0.75 Magnification (Not Shown)	1
12	212 236♦	Lens, 1.00 Magnification (Not Shown)	1
12	212 237♦	Lens, 1.25 Magnification (Not Shown)	1
12	212 238♦	Lens, 1.50 Magnification (Not Shown)	1
12	212 239♦	Lens, 1.75 Magnification (Not Shown)	1
12	212 240♦	Lens, 2.00 Magnification (Not Shown)	1
12	212 241♦	Lens, 2.25 Magnification (Not Shown)	1
12	212 242♦	Lens, 2.50 Magnification (Not Shown)	1

♦ Optional

SECTION 11 – LIMITED WARRANTY

LIMITED WARRANTY – Subject to the terms and conditions below. Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that the new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OR MERCHANTABILITY AND FITNESS.

Miller auto-darkening lens helmets are warranted for 2 years from the date of purchase. *Proof of purchase is required for warranty transactions so it is imperative that a copy of the original invoice or sales receipt be retained.*

For warranty transactions, contact your Miller Distributor.

Effective January 1, 2011

Notes

Notes

Visit our website at
www.MillerWelds.com

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